FIG.1

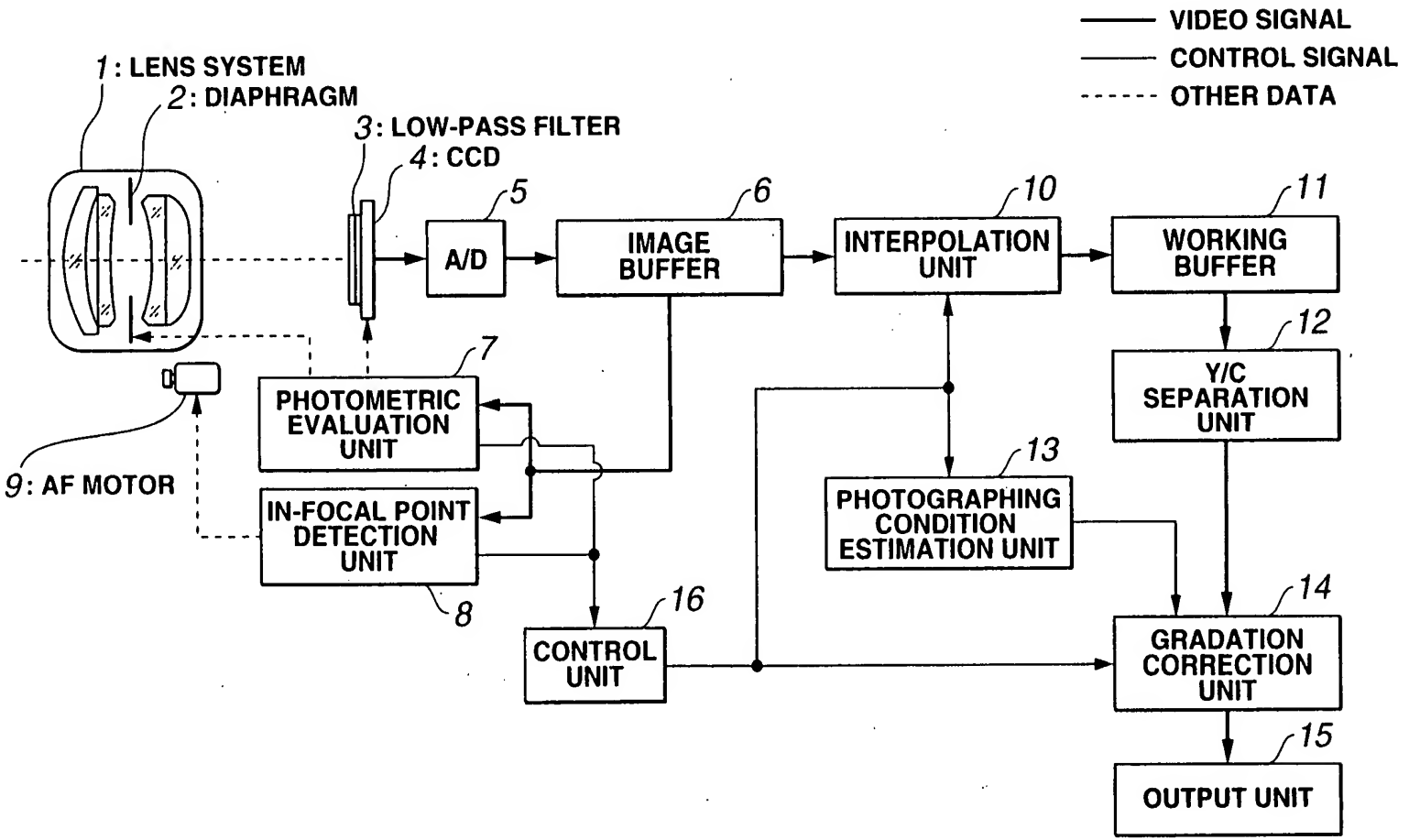

VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
1: LENS SYSTEM
2: DIAPHRAGM
3: LOW-PASS FILTER
4: CCD
5
A/D
6
IMAGE BUFFER
10
INTERPOLATION UNIT
11
WORKING BUFFER
12
Y/C SEPARATION UNIT
7
PHOTOMETRIC EVALUATION UNIT
9: AF MOTOR
IN-FOCAL POINT DETECTION UNIT
8
13
PHOTOGRAPHING CONDITION ESTIMATION UNIT
16
CONTROL UNIT
14
GRADATION CORRECTION UNIT
15
OUTPUT UNIT

FIG.2

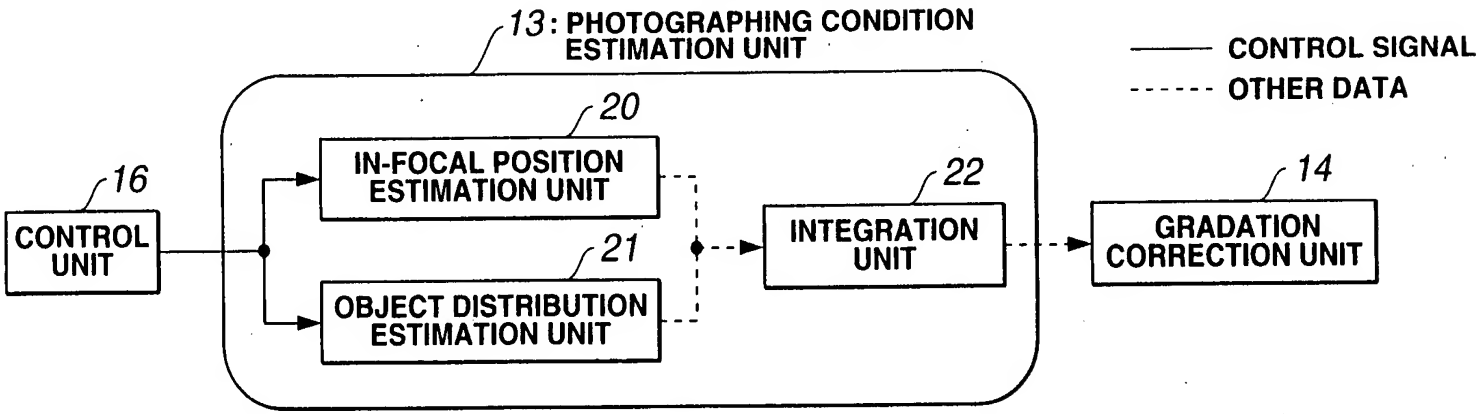

13 : PHOTOGRAPHING CONDITION ESTIMATION UNIT
CONTROL SIGNAL
OTHER DATA
16
CONTROL UNIT
20
IN-FOCAL POSITION ESTIMATION UNIT
21
OBJECT DISTRIBUTION ESTIMATION UNIT
22
INTEGRATION UNIT
14
GRADATION CORRECTION UNIT

FIG.3

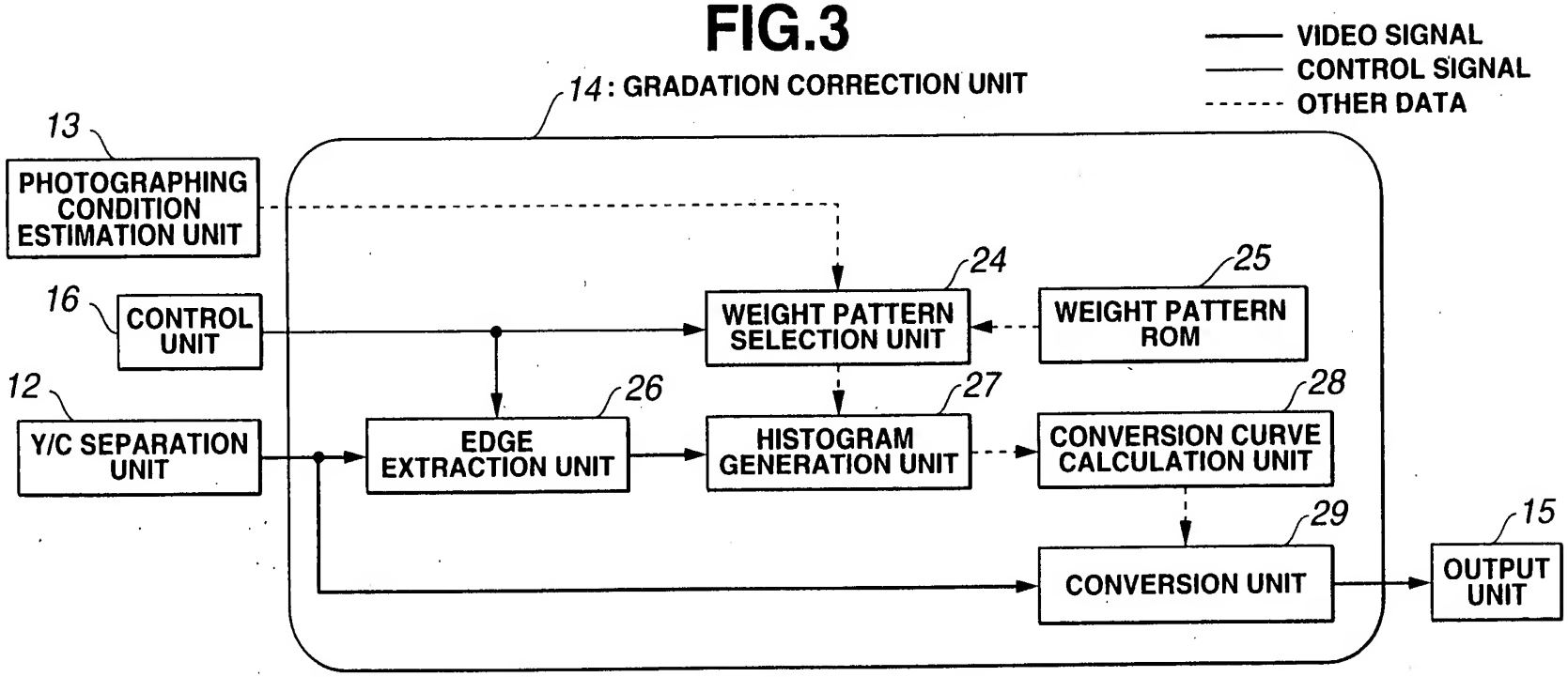

VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
14 : GRADATION CORRECTION UNIT
13
PHOTOGRAPHING CONDITION ESTIMATION UNIT
16
CONTROL UNIT
12
Y/C SEPARATION UNIT
24
WEIGHT PATTERN SELECTION UNIT
25
WEIGHT PATTERN ROM
26
EDGE EXTRACTION UNIT
27
HISTOGRAM GENERATION UNIT
28
CONVERSION CURVE CALCULATION UNIT
29
CONVERSION UNIT
15
OUTPUT UNIT

FIG.4

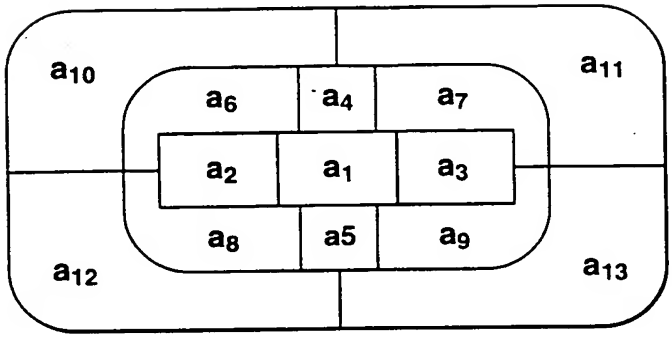


FIG.5

AF INFORMATION	AE INFORMATION	DISTRIBUTION STATE OF SUBJECT	TYPE
5m ~ ∞	$S_3 > Th_1$	LANDSCAPE CONTAINING SKY ON UPPER SIDE	Type 1
	$S_3 < Th_1$	LANDSCAPE CONTAINING NO (SLIGHT) SKY ON UPPER SIDE	Type 2
1m ~ 5m	$S_2 > Th_2$	PORTRAIT OF ONE PERSON	Type 3
	$S_2 < Th_2$	PORTRAIT OF PLURAL PERSONS	Type 4
1m OR LESS	$S_1 > Th_3$	CLOSEUP OF SINGLE SUBJECT	Type 5
	$S_1 < Th_3$	CLOSEUP OF PLURAL SUBJECTS	Type 6

FIG.6A

0	0	0	0
1	1	1	1
1	1	1	1
1	1	1	1

Type 1

FIG.6B

1	1	1	1
1	1	1	1
1	1	1	1
1	1	1	1

Type 2

FIG.6C

0	1	1	0
1	8	8	1
1	1	1	1
0	1	1	0

Type 3

FIG.6D

0	1	1	0
4	4	4	4
2	4	4	2
1	1	1	1

Type 4

FIG.6E

1	1	1	1
1	4	4	1
1	4	4	1
1	1	1	1

Type 5

FIG.6F

1	1	1	1
1	2	2	1
1	2	2	1
1	1	1	1

Type 6

FIG.7

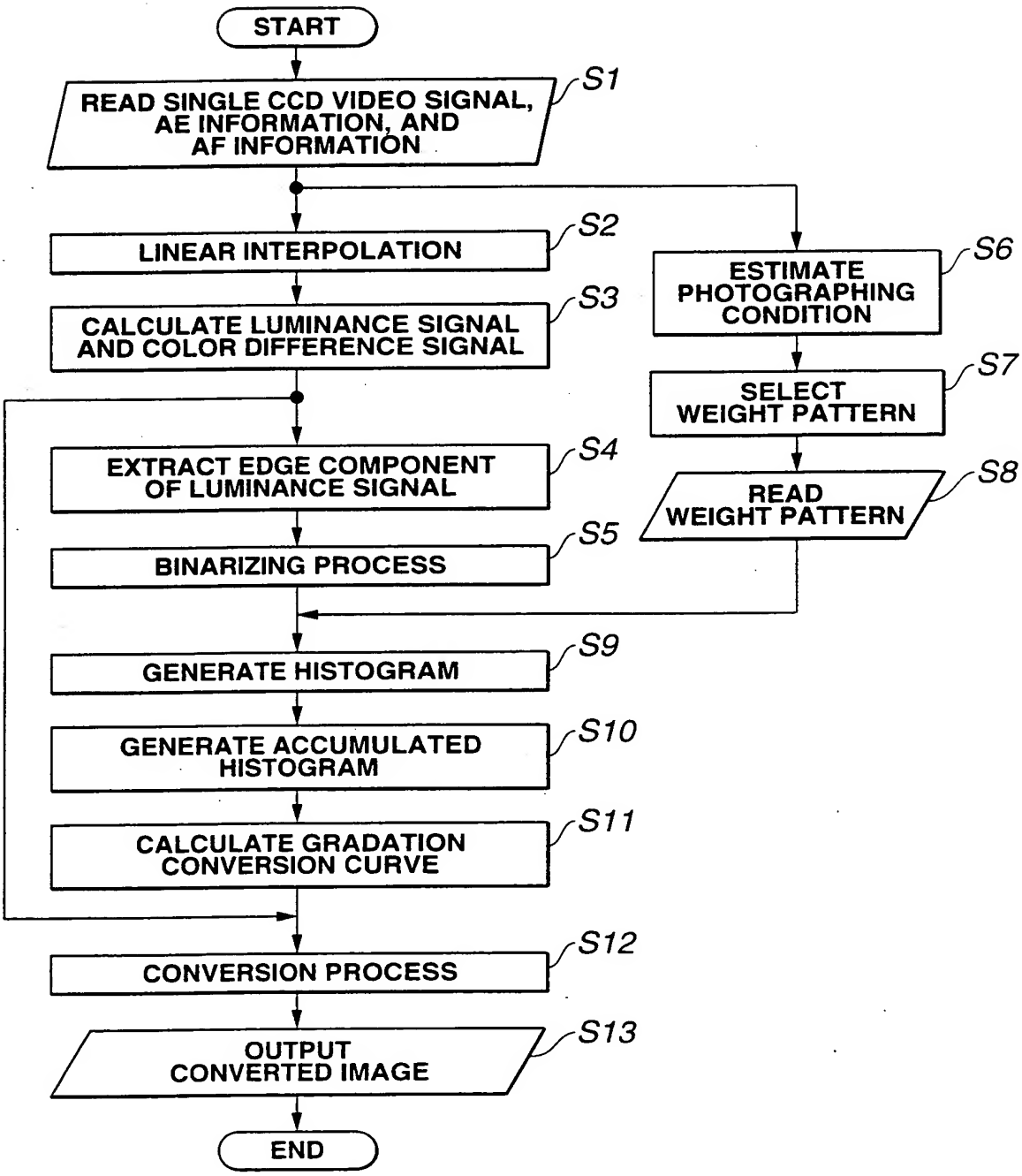

START
READ SINGLE CCD VIDEO SIGNAL, AE INFORMATION, AND AF INFORMATION
S1
LINEAR INTERPOLATION
S2
CALCULATE LUMINANCE SIGNAL AND COLOR DIFFERENCE SIGNAL
S3
EXTRACT EDGE COMPONENT OF LUMINANCE SIGNAL
S4
BINARIZING PROCESS
S5
ESTIMATE PHOTOGRAPHING CONDITION
S6
SELECT WEIGHT PATTERN
S7
READ WEIGHT PATTERN
S8
GENERATE HISTOGRAM
S9
GENERATE ACCUMULATED HISTOGRAM
S10
CALCULATE GRADATION CONVERSION CURVE
S11
CONVERSION PROCESS
S12
OUTPUT CONVERTED IMAGE
S13
END

FIG.8

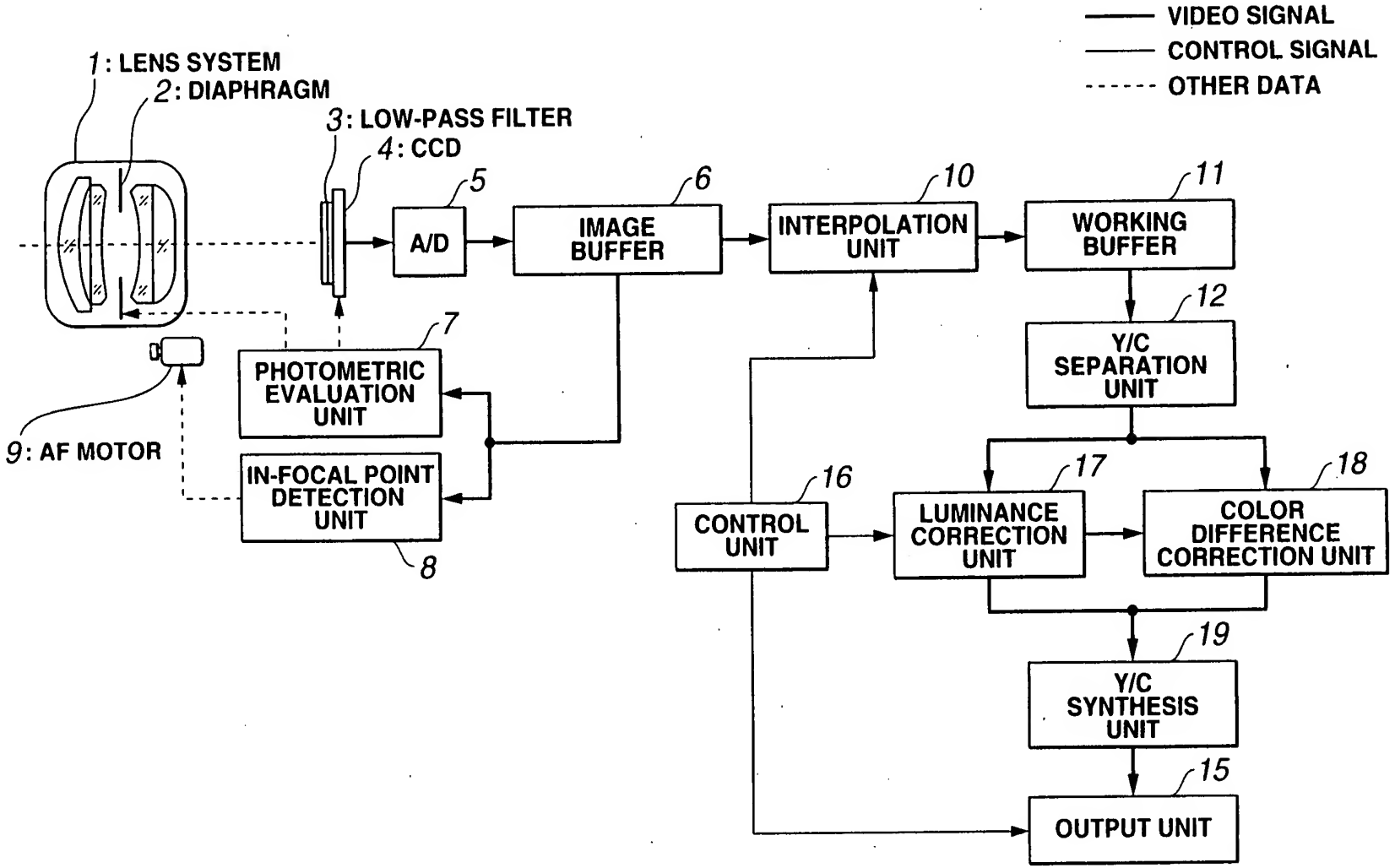

VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
1: LENS SYSTEM
2: DIAPHRAGM
3: LOW-PASS FILTER
4: CCD
5
A/D
6
IMAGE BUFFER
10
INTERPOLATION UNIT
11
WORKING BUFFER
12
Y/C SEPARATION UNIT
7
PHOTOMETRIC EVALUATION UNIT
9: AF MOTOR
IN-FOCAL POINT DETECTION UNIT
8
16
CONTROL UNIT
17
LUMINANCE CORRECTION UNIT
18
COLOR DIFFERENCE CORRECTION UNIT
19
Y/C SYNTHESIS UNIT
15
OUTPUT UNIT

FIG.9

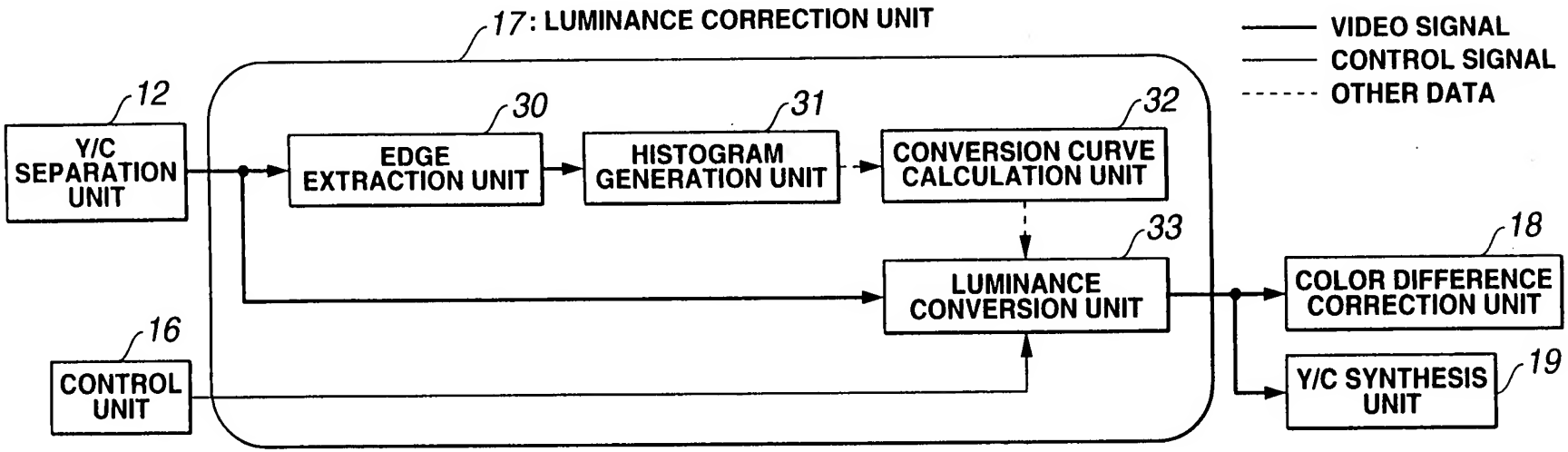

17: LUMINANCE CORRECTION UNIT
VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
12
Y/C SEPARATION UNIT
30
EDGE EXTRACTION UNIT
31
HISTOGRAM GENERATION UNIT
32
CONVERSION CURVE CALCULATION UNIT
33
LUMINANCE CONVERSION UNIT
16
CONTROL UNIT
18
COLOR DIFFERENCE CORRECTION UNIT
19
Y/C SYNTHESIS UNIT

FIG.10

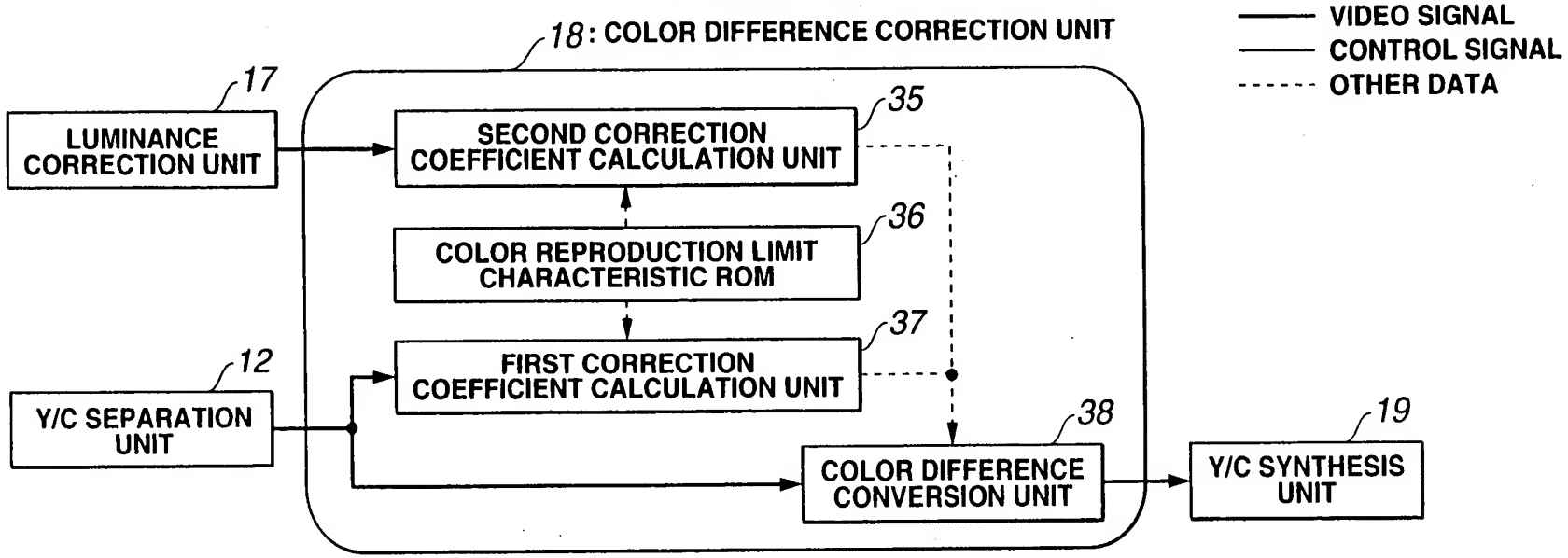

18: COLOR DIFFERENCE CORRECTION UNIT
VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
17
LUMINANCE CORRECTION UNIT
35
SECOND CORRECTION COEFFICIENT CALCULATION UNIT
36
COLOR REPRODUCTION LIMIT CHARACTERISTIC ROM
37
FIRST CORRECTION COEFFICIENT CALCULATION UNIT
12
Y/C SEPARATION UNIT
38
COLOR DIFFERENCE CONVERSION UNIT
19
Y/C SYNTHESIS UNIT

FIG.11

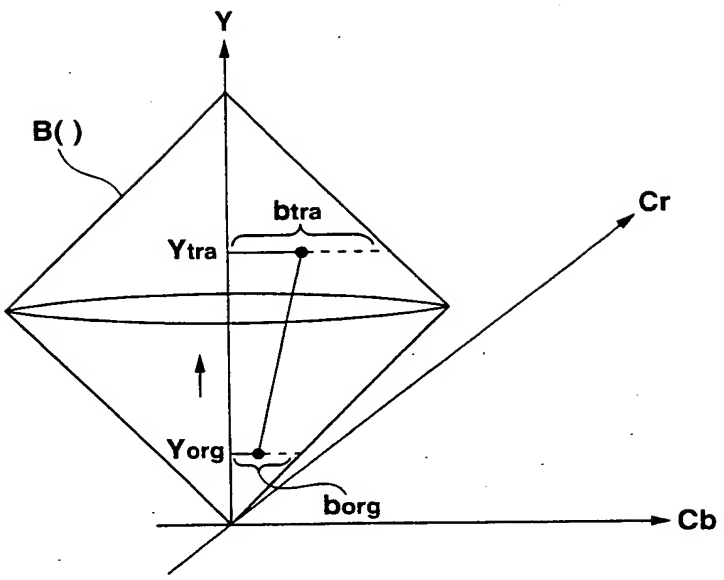


FIG.12

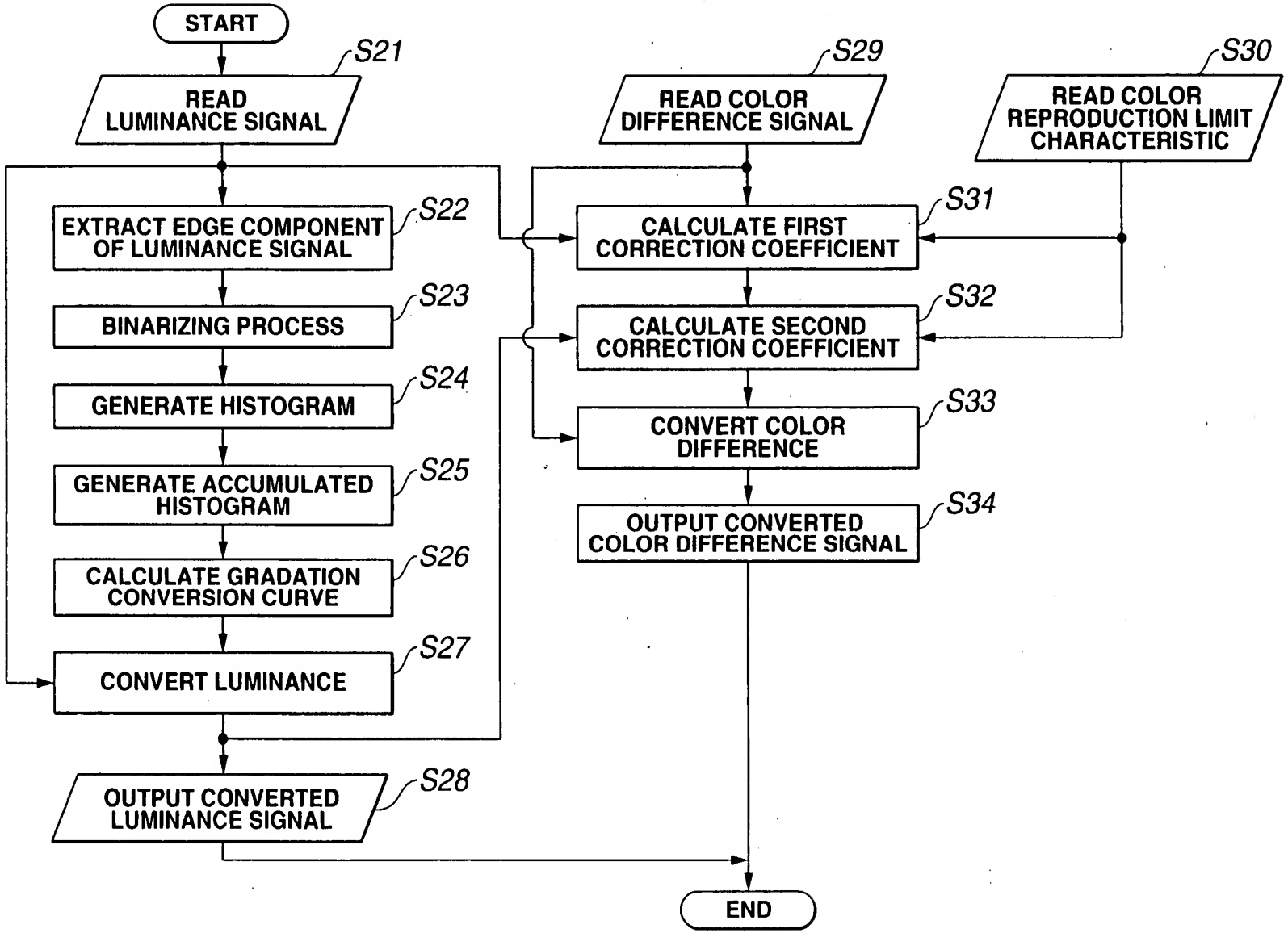

START
S21
READ LUMINANCE SIGNAL
S22
EXTRACT EDGE COMPONENT OF LUMINANCE SIGNAL
S23
BINARIZING PROCESS
S24
GENERATE HISTOGRAM
S25
GENERATE ACCUMULATED HISTOGRAM
S26
CALCULATE GRADATION CONVERSION CURVE
S27
CONVERT LUMINANCE
S28
OUTPUT CONVERTED LUMINANCE SIGNAL
S29
READ COLOR DIFFERENCE SIGNAL
S30
READ COLOR REPRODUCTION LIMIT CHARACTERISTIC
S31
CALCULATE FIRST CORRECTION COEFFICIENT
S32
CALCULATE SECOND CORRECTION COEFFICIENT
S33
CONVERT COLOR DIFFERENCE
S34
OUTPUT CONVERTED COLOR DIFFERENCE SIGNAL
END

FIG.13

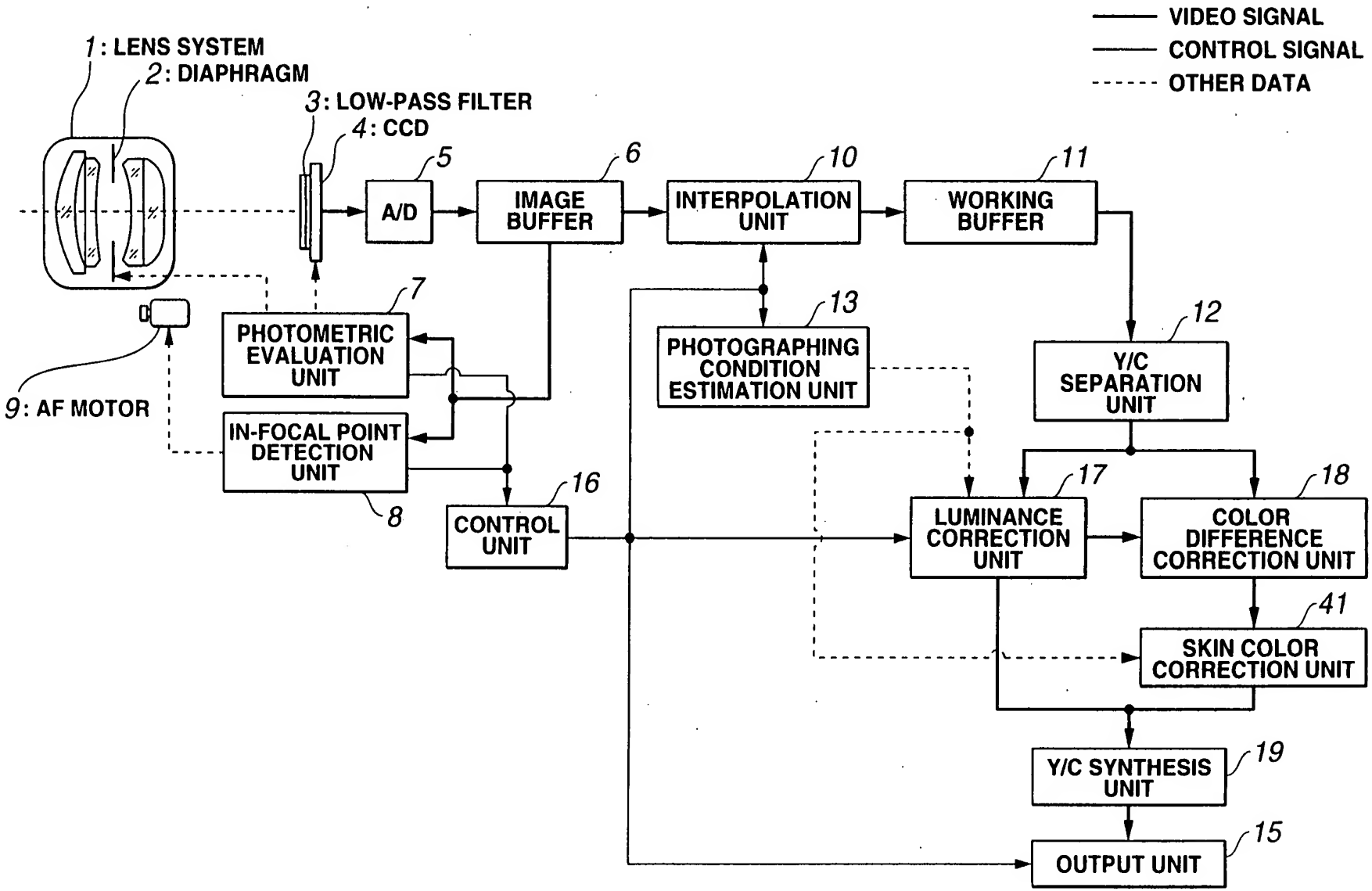

VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
1: LENS SYSTEM
2: DIAPHRAGM
3: LOW-PASS FILTER
4: CCD
5
A/D
6
IMAGE BUFFER
10
INTERPOLATION UNIT
11
WORKING BUFFER
7
PHOTOMETRIC EVALUATION UNIT
9: AF MOTOR
IN-FOCAL POINT DETECTION UNIT
8
13
PHOTOGRAPHING CONDITION ESTIMATION UNIT
12
Y/C SEPARATION UNIT
16
CONTROL UNIT
17
LUMINANCE CORRECTION UNIT
18
COLOR DIFFERENCE CORRECTION UNIT
41
SKIN COLOR CORRECTION UNIT
19
Y/C SYNTHESIS UNIT
15
OUTPUT UNIT

FIG.14

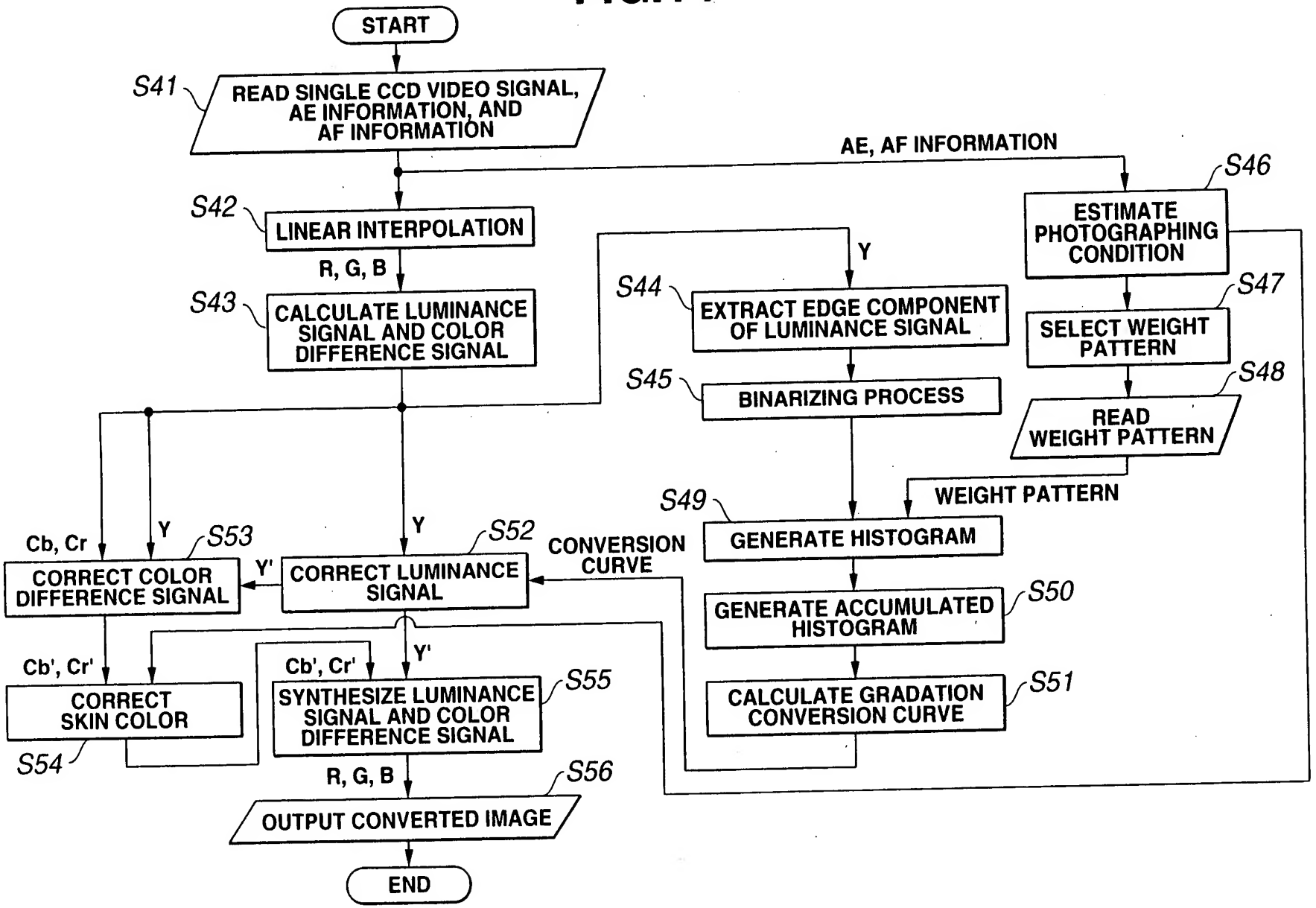

START
S41
READ SINGLE CCD VIDEO SIGNAL, AE INFORMATION, AND AF INFORMATION
AE, AF INFORMATION
S46
ESTIMATE PHOTOGRAPHING CONDITION
S42
LINEAR INTERPOLATION
R, G, B
S43
CALCULATE LUMINANCE SIGNAL AND COLOR DIFFERENCE SIGNAL
Y
S44
EXTRACT EDGE COMPONENT OF LUMINANCE SIGNAL
S47
SELECT WEIGHT PATTERN
S45
BINARIZING PROCESS
S48
READ WEIGHT PATTERN
WEIGHT PATTERN
S49
GENERATE HISTOGRAM
Cb, Cr
Y
S53
CORRECT COLOR DIFFERENCE SIGNAL
Y'
Y
S52
CORRECT LUMINANCE SIGNAL
CONVERSION CURVE
S50
GENERATE ACCUMULATED HISTOGRAM
Cb', Cr'
CORRECT SKIN COLOR
S54
Cb', Cr'
Y'
S55
SYNTHESIZE LUMINANCE SIGNAL AND COLOR DIFFERENCE SIGNAL
S51
CALCULATE GRADATION CONVERSION CURVE
R, G, B
S56
OUTPUT CONVERTED IMAGE
END

FIG.15

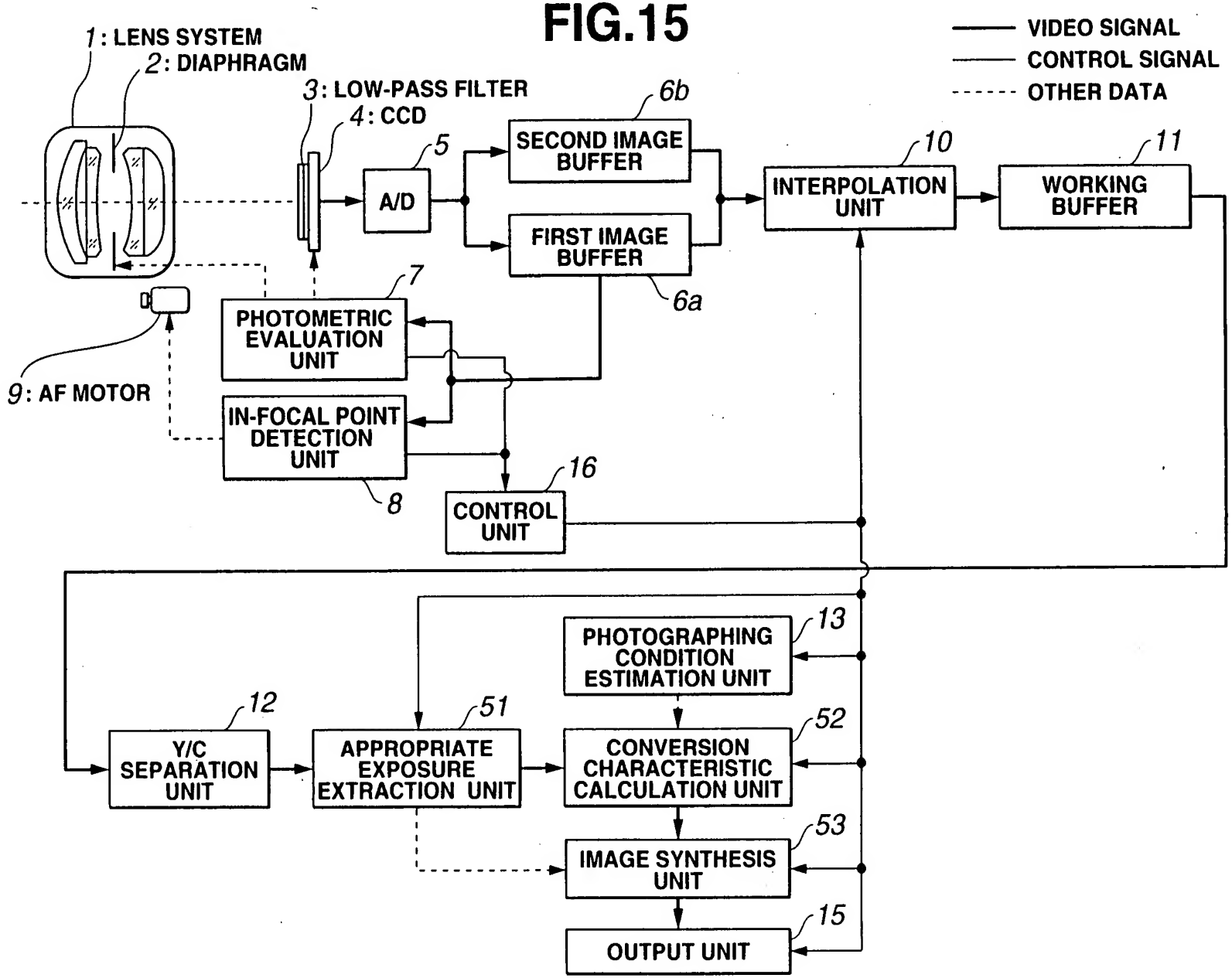

VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
1: LENS SYSTEM
2: DIAPHRAGM
3: LOW-PASS FILTER
4: CCD
5
A/D
6b
SECOND IMAGE BUFFER
FIRST IMAGE BUFFER
6a
10
INTERPOLATION UNIT
11
WORKING BUFFER
7
PHOTOMETRIC EVALUATION UNIT
9: AF MOTOR
IN-FOCAL POINT DETECTION UNIT
8
16
CONTROL UNIT
13
PHOTOGRAPHING CONDITION ESTIMATION UNIT
12
Y/C SEPARATION UNIT
51
APPROPRIATE EXPOSURE EXTRACTION UNIT
52
CONVERSION CHARACTERISTIC CALCULATION UNIT
53
IMAGE SYNTHESIS UNIT
15
OUTPUT UNIT

FIG.16

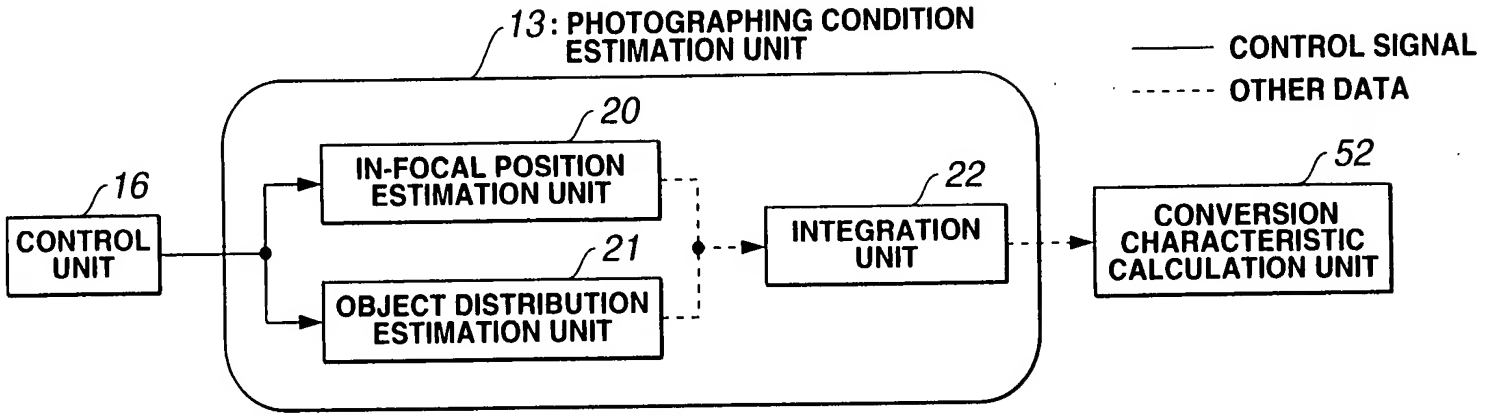

13: PHOTOGRAPHING CONDITION ESTIMATION UNIT
CONTROL SIGNAL
OTHER DATA
16
CONTROL UNIT
20
IN-FOCAL POSITION ESTIMATION UNIT
21
OBJECT DISTRIBUTION ESTIMATION UNIT
22
INTEGRATION UNIT
52
CONVERSION CHARACTERISTIC CALCULATION UNIT

FIG.17

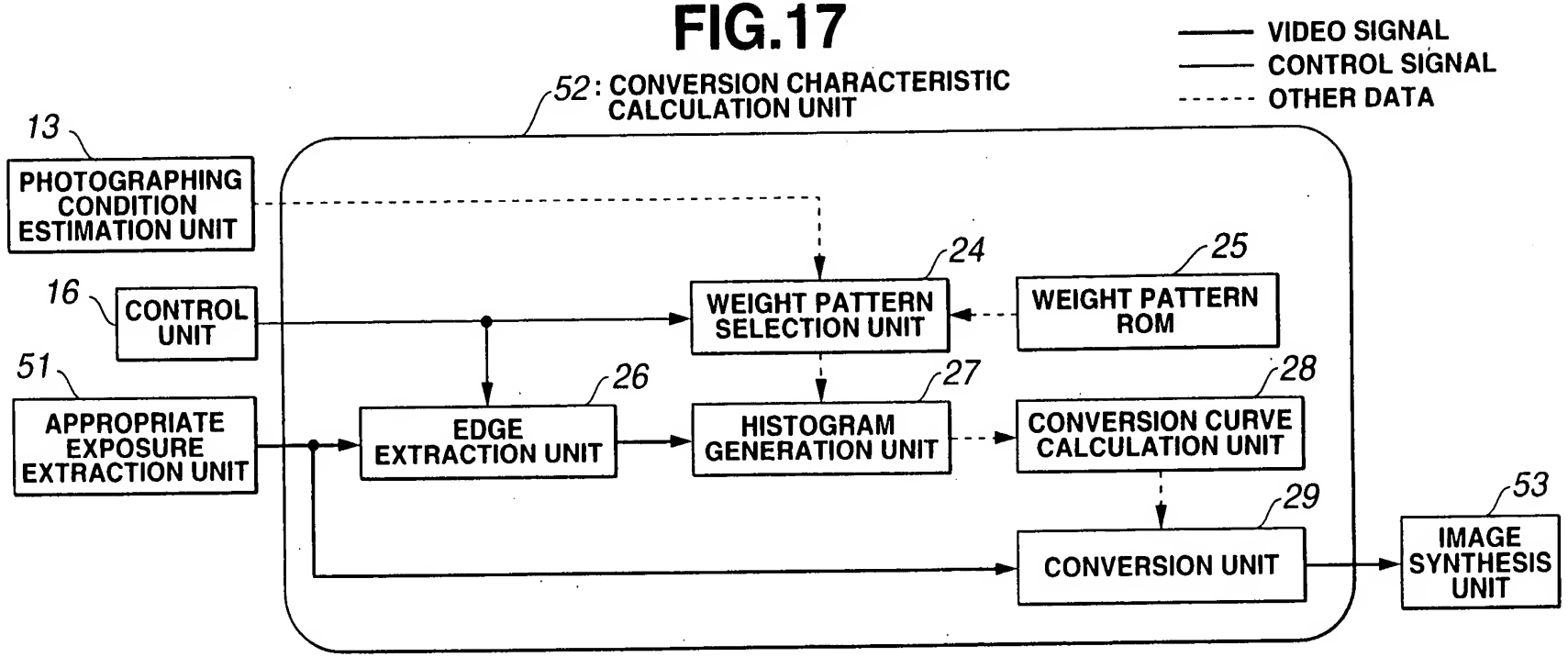

VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
52: CONVERSION CHARACTERISTIC CALCULATION UNIT
13
PHOTOGRAPHING CONDITION ESTIMATION UNIT
16
CONTROL UNIT
51
APPROPRIATE EXPOSURE EXTRACTION UNIT
24
WEIGHT PATTERN SELECTION UNIT
25
WEIGHT PATTERN ROM
26
EDGE EXTRACTION UNIT
27
HISTOGRAM GENERATION UNIT
28
CONVERSION CURVE CALCULATION UNIT
29
CONVERSION UNIT
53
IMAGE SYNTHESIS UNIT

FIG.18

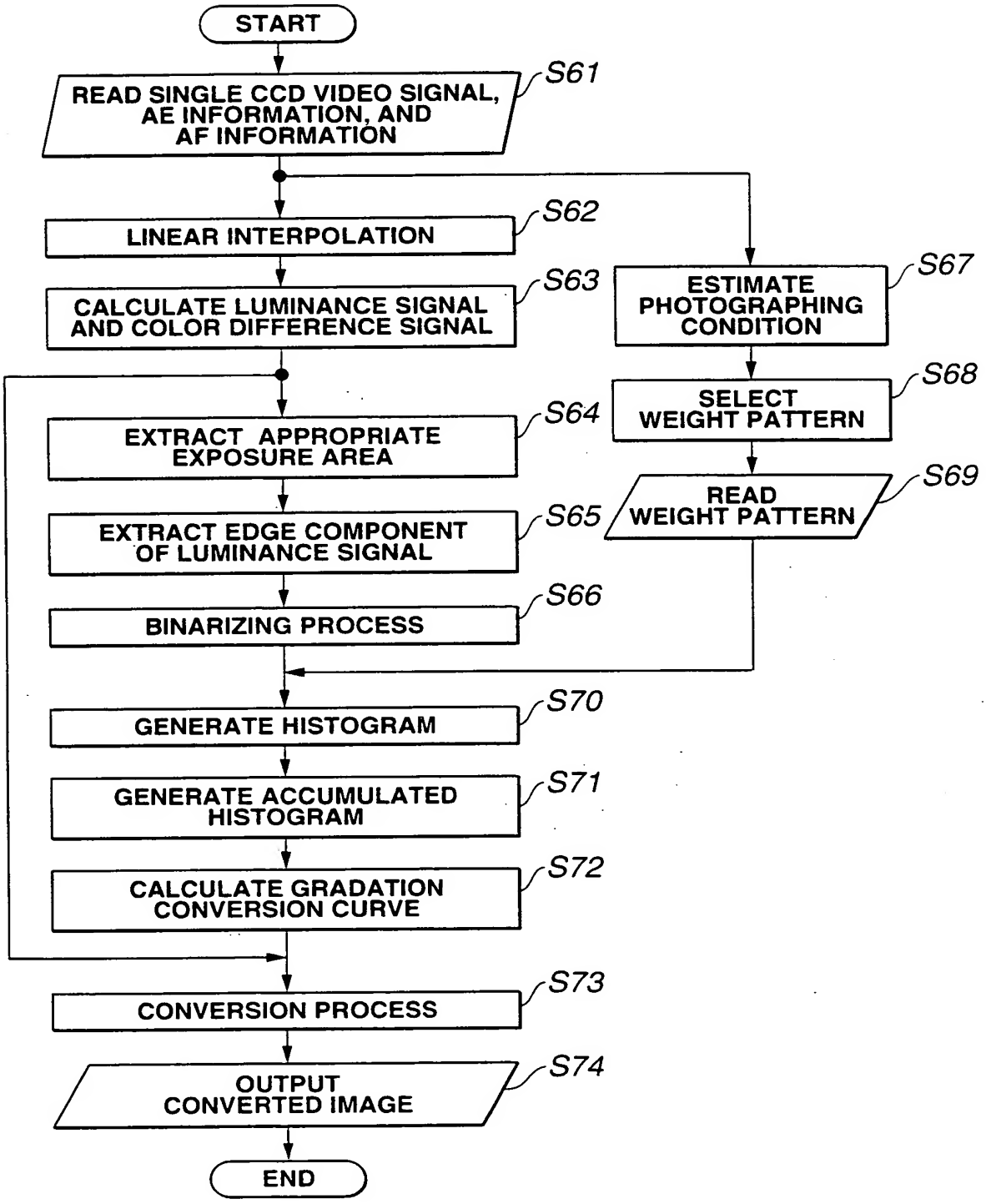

START
READ SINGLE CCD VIDEO SIGNAL, AE INFORMATION, AND AF INFORMATION
S61
LINEAR INTERPOLATION
S62
CALCULATE LUMINANCE SIGNAL AND COLOR DIFFERENCE SIGNAL
S63
EXTRACT APPROPRIATE EXPOSURE AREA
S64
EXTRACT EDGE COMPONENT OF LUMINANCE SIGNAL
S65
BINARIZING PROCESS
S66
ESTIMATE PHOTOGRAPHING CONDITION
S67
SELECT WEIGHT PATTERN
S68
READ WEIGHT PATTERN
S69
GENERATE HISTOGRAM
S70
GENERATE ACCUMULATED HISTOGRAM
S71
CALCULATE GRADATION CONVERSION CURVE
S72
CONVERSION PROCESS
S73
OUTPUT CONVERTED IMAGE
S74
END

FIG.19

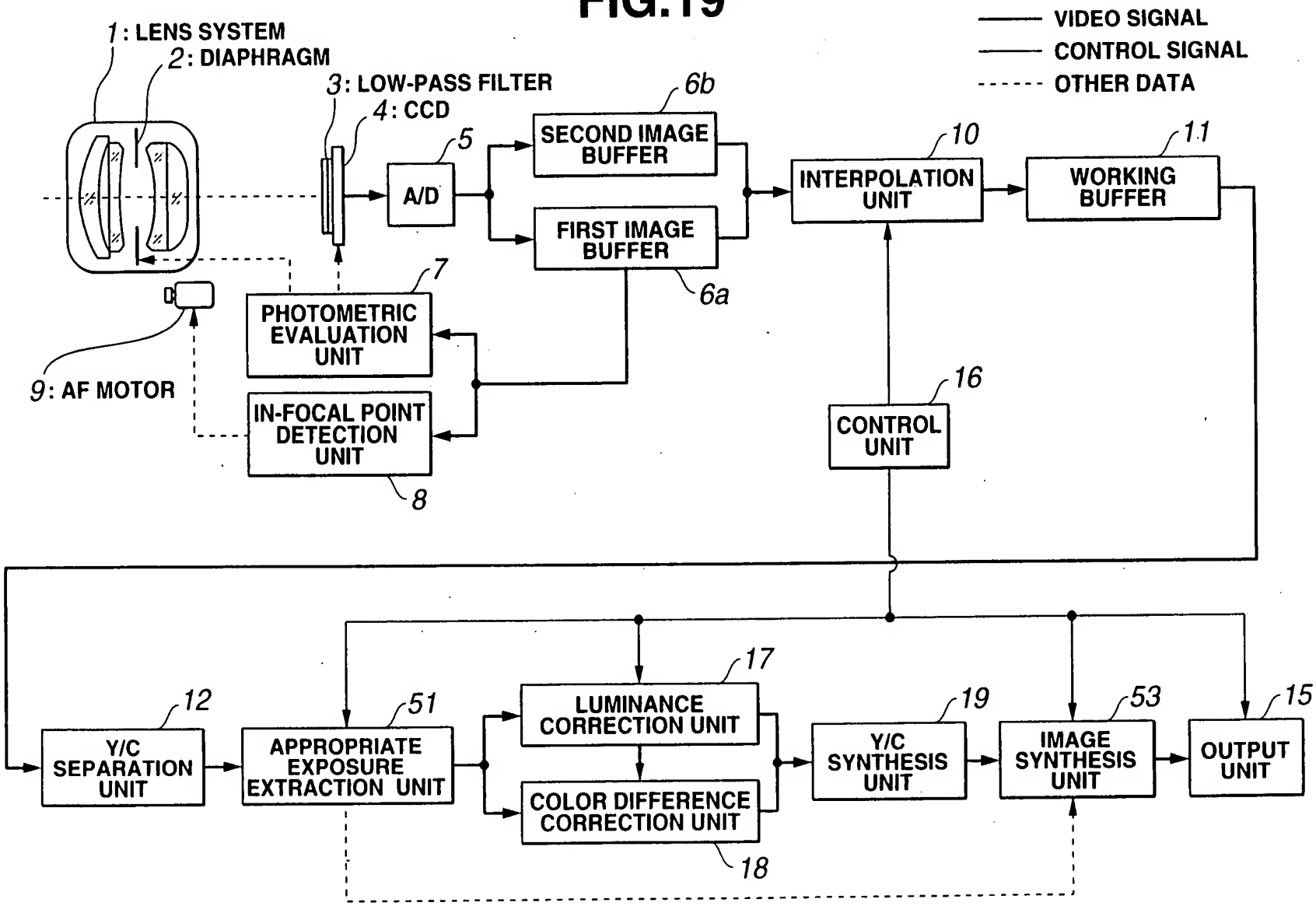

VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
1: LENS SYSTEM
2: DIAPHRAGM
3: LOW-PASS FILTER
4: CCD
5
A/D
6b
SECOND IMAGE BUFFER
FIRST IMAGE BUFFER
6a
10
INTERPOLATION UNIT
11
WORKING BUFFER
7
PHOTOMETRIC EVALUATION UNIT
9: AF MOTOR
IN-FOCAL POINT DETECTION UNIT
8
16
CONTROL UNIT
12
Y/C SEPARATION UNIT
51
APPROPRIATE EXPOSURE EXTRACTION UNIT
17
LUMINANCE CORRECTION UNIT
COLOR DIFFERENCE CORRECTION UNIT
18
19
Y/C SYNTHESIS UNIT
53
IMAGE SYNTHESIS UNIT
15
OUTPUT UNIT

FIG.20

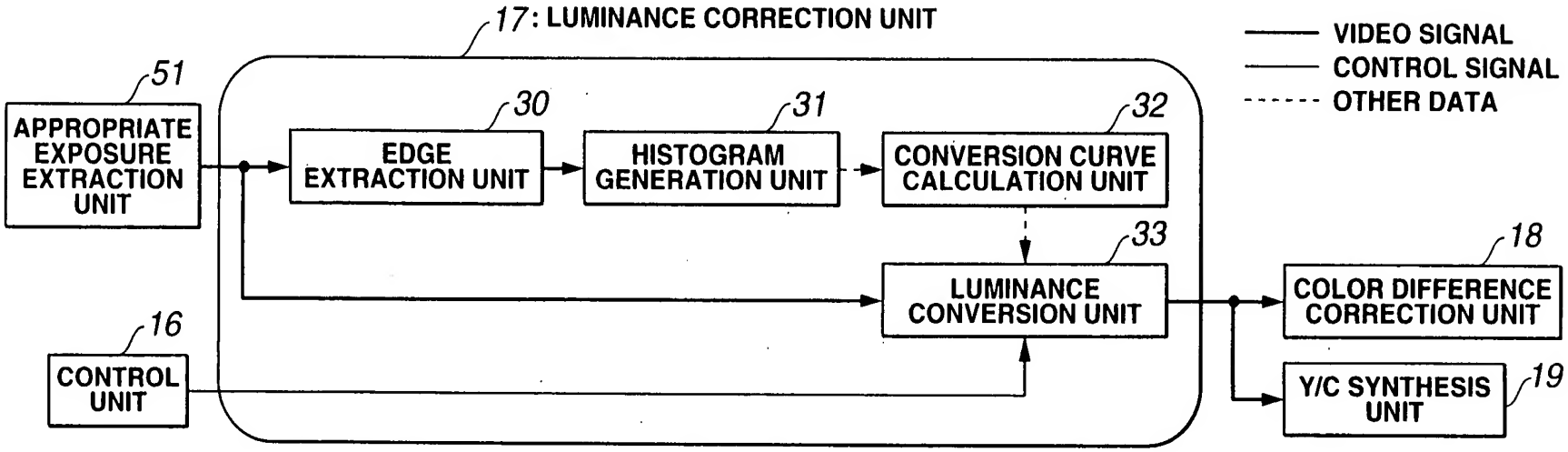

17: LUMINANCE CORRECTION UNIT
VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
51
APPROPRIATE EXPOSURE EXTRACTION UNIT
30
EDGE EXTRACTION UNIT
31
HISTOGRAM GENERATION UNIT
32
CONVERSION CURVE CALCULATION UNIT
33
LUMINANCE CONVERSION UNIT
18
COLOR DIFFERENCE CORRECTION UNIT
16
CONTROL UNIT
Y/C SYNTHESIS UNIT
19

FIG.21

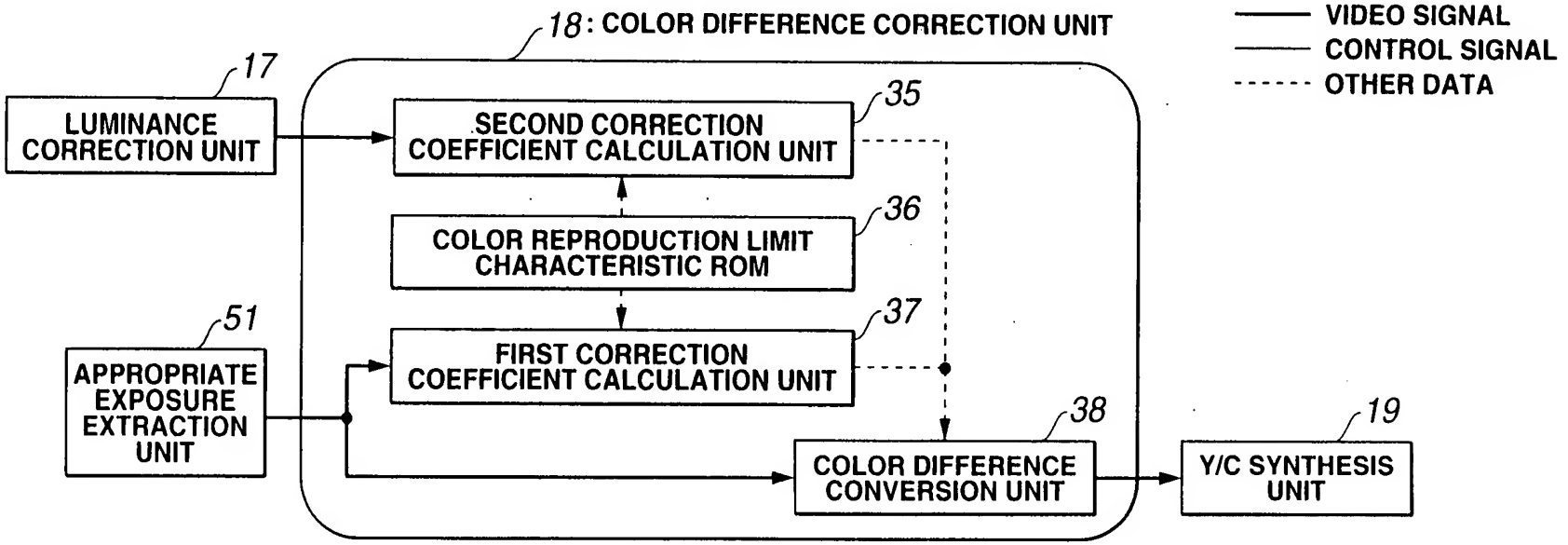
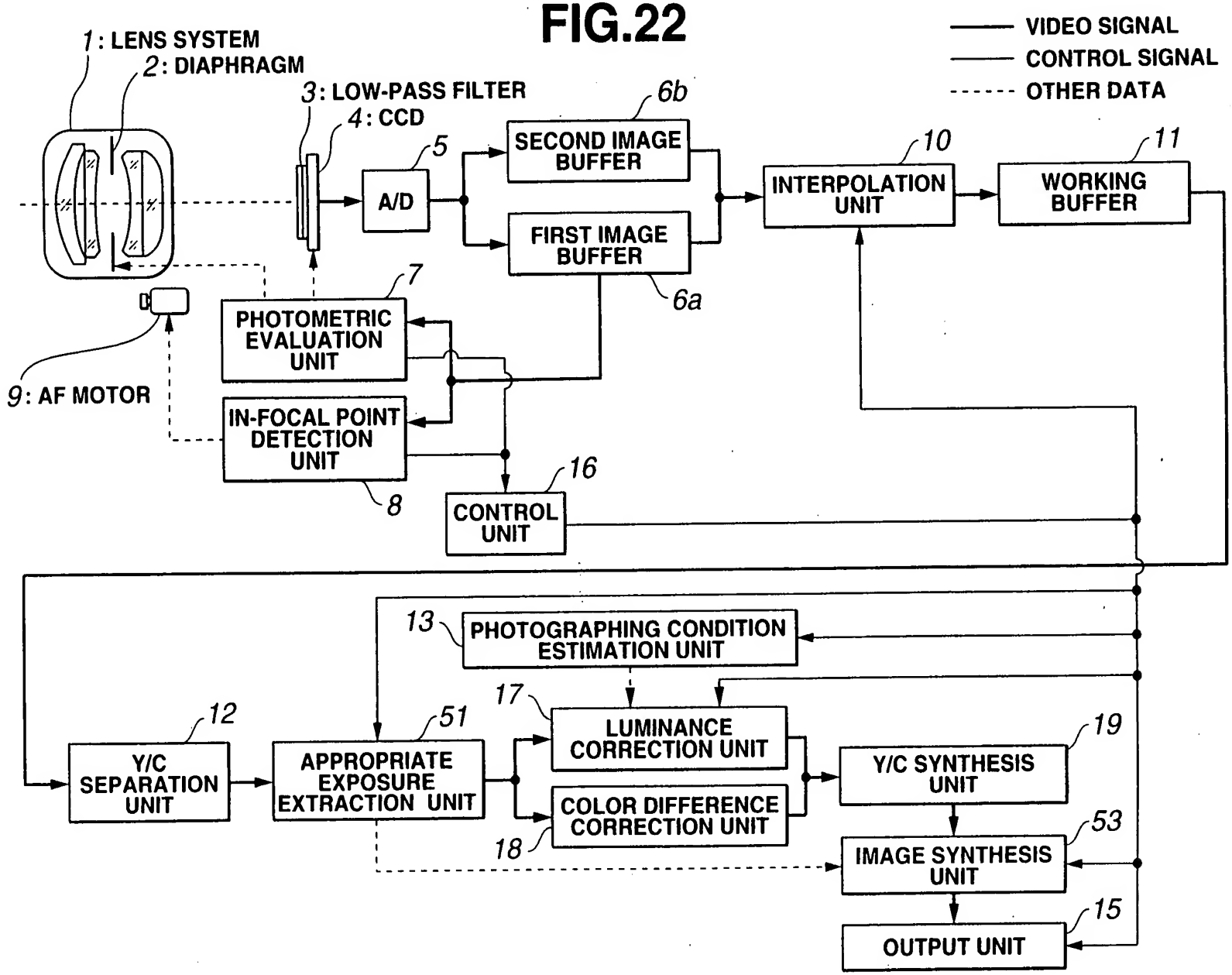

18: COLOR DIFFERENCE CORRECTION UNIT
VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
17
LUMINANCE CORRECTION UNIT
35
SECOND CORRECTION COEFFICIENT CALCULATION UNIT
36
COLOR REPRODUCTION LIMIT CHARACTERISTIC ROM
37
FIRST CORRECTION COEFFICIENT CALCULATION UNIT
51
APPROPRIATE EXPOSURE EXTRACTION UNIT
38
COLOR DIFFERENCE CONVERSION UNIT
19
Y/C SYNTHESIS UNIT

FIG.22


VIDEO SIGNAL
CONTROL SIGNAL
OTHER DATA
1: LENS SYSTEM
2: DIAPHRAGM
3: LOW-PASS FILTER
4: CCD
5
A/D
6b
SECOND IMAGE BUFFER
FIRST IMAGE BUFFER
6a
10
INTERPOLATION UNIT
11
WORKING BUFFER
7
PHOTOMETRIC EVALUATION UNIT
9: AF MOTOR
IN-FOCAL POINT DETECTION UNIT
8
16
CONTROL UNIT
13
PHOTOGRAPHING CONDITION ESTIMATION UNIT
12
Y/C SEPARATION UNIT
51
APPROPRIATE EXPOSURE EXTRACTION UNIT
17
LUMINANCE CORRECTION UNIT
18
COLOR DIFFERENCE CORRECTION UNIT
19
Y/C SYNTHESIS UNIT
53
IMAGE SYNTHESIS UNIT
15
OUTPUT UNIT